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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/758,478 | 01/14/2004 | Rahul Gupta | 12406-181001 / P2004.0456 | 5829 |
| 26181 7590 02/01/2007 FISH & RICHARDSON P.C. PO BOX 1022 MINNEAPOLIS, MN 55440-1022 | | | EXAMINER KALAM, ABUL | |
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| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
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Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/758,478

Applicant(s)

GUPTA ET AL.

Examiner

Abul Kalam

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-25, 27 and 29-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-25, 27 and 29-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 1/14/04 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 14, 16-20 and 29 are rejected under 35 U.S.C. 102(e) as being anticipated by Takano et al. (US 2003/0176005, presented in previous Office Action).

With respect to claim 14, Takano teaches a method of fabricating an organic electronic device (**FIGs. 11-16; ¶ [0121]-[0127]**), said method comprising:

patterning a lower electrode layer (**511; FIG. 12**) upon a substrate (**501**), said lower electrode layer having a top exposed surface (**511a**);

depositing a precipitation agent (**polar solvent, ¶ [0124]**) upon said lower electrode layer (**511**) (**¶ [0125]-[0126]**); and

depositing an organic material (**PEDOT, PSS ¶ [0124]**) upon said precipitation agent, said organic material drying into an organic layer (**510a**), said organic layer having a substantially flat and uniform profile (**¶ [0127]**).

With respect to the limitations of “depositing a precipitation agent upon said lower electrode layer” and “depositing an organic material upon said precipitation agent, Takano teaches that the first composition, including an organic material and a

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precipitation agent (**¶ [0124]**), are deposited on the electrode **511**. Takano further states that the droplets **510c** of the first composition may be ejected onto the same electrode surface **511a** by a plurality of separate operations (**¶ [0125]**). Therefore, Takano teaches a precipitation agent (**polar solvent**) is deposited on the lower electrode **511** and an organic material (**PEDOT, PSS**) is deposited on the precipitation agent.

With respect to claim 16, Takano teaches a method according to claim 14 as set forth above, wherein said organic electronic device is an organic light emitting diode (OLED) display (**¶ [0109]-[0010]**).

With respect to claim 17, Takano teaches a method according to claim 16 as set forth above, wherein said lower electrode layer (**511**) functions as an anode (**¶ [0111] and [0138]**).

With respect to claim 18, Takano teaches a method according to claim 17 as set forth above, wherein said organic layer is a conducting polymer layer (**¶ [0123]-[0124]**).

With respect to claim 19, Takano teaches method according to claim 18 as set forth above, further comprising: fabricating an emissive layer (**510b**) above said conducting polymer layer, said emissive layer emitting light upon charge recombination (**pg. 11, [0135]-[0136]**).

With respect to claim 20, Takano teaches the method according to claim 19 as set forth above, further comprising: fabricating a photo-resist layer (**512a**) upon said lower electrode layer (**511**), said photo-resist layer patterned into a plurality of banks to define pockets upon said lower electrode layer (**¶ [0112]-[0113]**).

With respect to claim 29, Takano teaches the method according to claim 14, wherein the organic material mixes with the precipitation agent (**¶ [0124]**).

2. Claims **14, 16-23, and 27** are rejected under 35 U.S.C. 102(e) as being anticipated by Seki et al. (US 2004/0144975, presented in previous Office Action).

With respect to claim 14, Seki teaches a method of fabricating an organic electronic device (**Figs. 1-6; ¶ [0080]-[0085], [0103]-[0106] and [0142]-[0143]**), said method comprising:

 patterning a lower electrode layer (**3**) upon a substrate (**1**), said lower electrode layer having a top exposed surface (**Fig. 4**);

 depositing a precipitation agent (**polar solvent**) upon said lower electrode layer (**¶ [0118]**); and

 depositing an organic material (**6a**) upon said precipitation agent (**polar solvent containing "acetylenic alcohol surfactant"**), said organic material drying into an organic layer (**6**), said organic layer having a substantially flat and uniform profile (**¶ [0056], [0101], [0143]**).

Regarding claim 14, Seki's method involves depositing a composition (**6a**) including an organic conductive material and at least one species of solvent (**precipitation agent**) on the anodes (**lower electrode layer**) (**¶ [0143]**).

With respect to claim 16, Seki teaches the method according to claim 14 as set forth above, wherein said organic electronic device is an organic light emitting diode (OLED) display (**¶ [0121]**).

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With respect to claim 17, Seki teaches the method according to claim 16 as set forth above, wherein said lower electrode layer (3) functions as an anode (**¶ [0121]**).

With respect to claim 18, Seki teaches the method according to claim 17 as set forth above, wherein said organic layer is a conducting polymer layer (**¶ [0083]**).

With respect to claim 19, Seki teaches the method according to claim 18 as set forth above, further comprising: fabricating an emissive layer (7) above said conducting polymer layer, said emissive layer emitting light upon charge recombination (**¶ [0129]-[0131]**).

With respect to claim 20, Seki teaches the method according to claim 19 as set forth above, further comprising: fabricating a photo-resist layer (4) upon said lower electrode layer (3), said photo-resist layer patterned into a plurality of banks to define pockets upon said lower electrode layer (**¶ [0133]-[0134]**).

With respect to claim 21, Seki teaches the method according to claim 20 as set forth above, wherein said precipitation agent is printed into said pockets (**¶ [0141]-[0143]**).

With respect to claim 22, Seki teaches the method according to claim 20 as set forth above, wherein said organic material is deposited by printing (**¶ [0141]-[0143]**).

With respect to claim 23, Seki teaches the method according to claim 14 as set forth above, wherein said organic device is an organic transistor (**¶ [0170]-[0174]**).

With respect to claim 27, Seki teaches the method according to claim 14 as set forth above, wherein said precipitation agent includes dicationic salt (**acetylenic**

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alcohol). The limitation is inherent because the raw material used to fabricate acetylene is calcium carbonate, which is a dicationic salt.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 15 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seki (presented above) as applied to claim 14 above, and further in view of Sellinger (US 6,861,091, previously presented).

With respect to claim 15, Seki teaches all the limitations of the claim, as set forth above in claim 14, with the exception of disclosing: wherein the precipitation agent is deposited by spin coating.

However, Sellinger discloses a method of forming organic thin films in which the organic material and the precipitation agent ("**organic solvent**") are deposited by spin coating (**col. 9, Ins. 20-48 and col. 18, Ins. 37-40**).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Seki with the teaching of Sellinger, because the spin coating deposition would have been considered a mere substitution (**col. 3, Ins. 54-58 and col. 18, Ins. 37-40**) of art recognized equivalent processes MPEP 2144.06.

Regarding claim 15, substitution of equivalents requires no express motivation as long as the prior art recognizes the equivalency. *In re Fount* 213 USPQ 532 (CCPA 1982); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *Graver Tank & Mfg. Co. Inc. v. Lindle Air Products Co.* 85 USPQ 328 (USSC 1950).

With respect to claim 25, Seller teaches wherein the precipitation agent (organic solvent) is dioxane (**col. 9, Ins. 20-25**).

4. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Seki (presented above) as applied to claim 14 above, and further in view of Mueller et al. (US 6,316,786, previously presented) and Heeney (US 2003/0047719, previously presented).

With respect to claim 24, Seki teaches all the limitations of the claim, as set forth above in claim 14, with the exception of disclosing wherein said device is an organic solar cell.

However, Mueller teaches the fabrication of organic opto-electronic devices such as OLEDs, organic displays, organic solar cells, and photodiodes (**col. 1, Ins. 5-10**).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Seki with the teaching of Mueller, because organic solar cells were well known devices to artisans in the art of organic semiconductor devices at the time of the invention (**Heeney ('719): ¶ [0017]**).

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5. Claims 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takano et al. (presented above).

With respect to claims 30 and 31, Takano teaches a method of fabricating an organic electronic device (**FIGs. 11-16; ¶ [0121]-[0127]**), the method comprising:

patterning a lower electrode layer (**511; FIG. 12**) upon a substrate (**501**), said lower electrode layer having a top exposed surface (**511a**);

depositing a precipitation agent (**polar solvent, ¶ [0124]**) upon said lower electrode layer (**511**) (**¶ [0125]-[0126]**); and

depositing an organic material (**PEDOT, PSS ¶ [0124]**) upon said precipitation agent, said organic material drying into an organic layer (**510a**), said organic layer having a substantially flat and uniform profile (**¶ [0127]**).

With respect to the limitations of “depositing a precipitation agent upon said lower electrode layer” and “depositing an organic material upon said precipitation agent, Takano teaches that the first composition, including an organic material and a precipitation agent (**¶ [0124]**), are deposited on the electrode **511**. Takano further states that the droplets **510c** of the first composition may be ejected onto the same electrode surface **511a** by a plurality of separate operations (**¶ [0125]**). Therefore, Takano teaches a precipitation agent (**polar solvent**) is deposited on the lower electrode **511** and an organic material (**PEDOT, PSS**) is deposited on the precipitation agent.

Thus, Takano teaches all the limitations of the claim with the exception of disclosing: causing the particles of the organic material to become larger in size and

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coalesce together, through flocculation, to increase their weight and the effect of gravitational force upon the particles. However, this limitation is drawn to a function.

Note that the claimed properties or functions are presumed to be inherent when the structure or method of a reference is substantially identical to that of the claims **(MPEP 2112.01)**. Therefore, where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977) and MPEP 2112.01.

Response to Arguments

Applicant's arguments filed on November 7, 2006 have been fully considered but they are not persuasive.

Applicant argues that Takano and Seki fail to teach depositing a precipitation agent on the electrode. However, Takano teaches wherein a composition **510c** containing a polar solvent (precipitation agent) is deposited on the electrode surface **511a** (**¶ [0124]-[0127]**). The composition is a liquid, when it is deposited, but after heating treatments, wherein the precipitation agent is evaporated, an organic layer **510a** is formed. Seki also teaches wherein a composition **6a** containing a polar solvent (precipitation agent), is deposited on the electrode **3** (**Figs. 5-6; ¶ [0141]-[0143]**).


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abul Kalam whose telephone number is 571-272-8346. The examiner can normally be reached on Monday - Friday, 9 AM - 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael M. Fahmy can be reached on 571-272-1705. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Abul Kalam



HOAI PHAM
PRIMARY EXAMINER